4.4.20 OTHER HOUSING REQUIREMENTS

FIGURES 4.54 and 4.55 illustrate a number of features that are desirable in an air cleaning housing. The housing is all-welded construction. This housing consists of the moisture separator, prefilter, HEPA filter, carbon adsorber, and downstream HEPA, is a 9,000-cfm capacity system and includes the following features.

- Shop fabrication
- Wired-glass viewports on each side of the filter bank for visual inspection without entering the housing (**FIGURE 4.56**)
- Permanently installed lights in vapor-tight globes that are replaceable from outside of the housing
- Wiring installed on the outside of the housing (penetrations for wiring are a common source of leakage)
- Shock-mounted instruments with a pressure-drop manometer across each bank of filters and inlet and outlet temperature indicators (**FIGURES 4.57 through 4.60**)
- A large marine bulkhead door that is operable from both inside and outside the housing (**FIGURE 4.61**)
- Ample space (approximately 4- by 7-ft) inside the housing to allow personnel to work during a filter change
- All reinforcements located on the outside of the housing
- A housing opening on the aisle that can be controlled and that serves as a workspace during filter change-out
- All-welded construction to eliminate leaks to occupied areas
- All penetrations sealed by either continuous seal welding or adjustable compression-gland-type seals rated and qualified for the environmental conditions
- Housing drains located in each compartmentPermanently installed test aerosol and Freon injection and sample ports are highly recommended.

Figure 4.54 – Desirable air cleaning housing features.

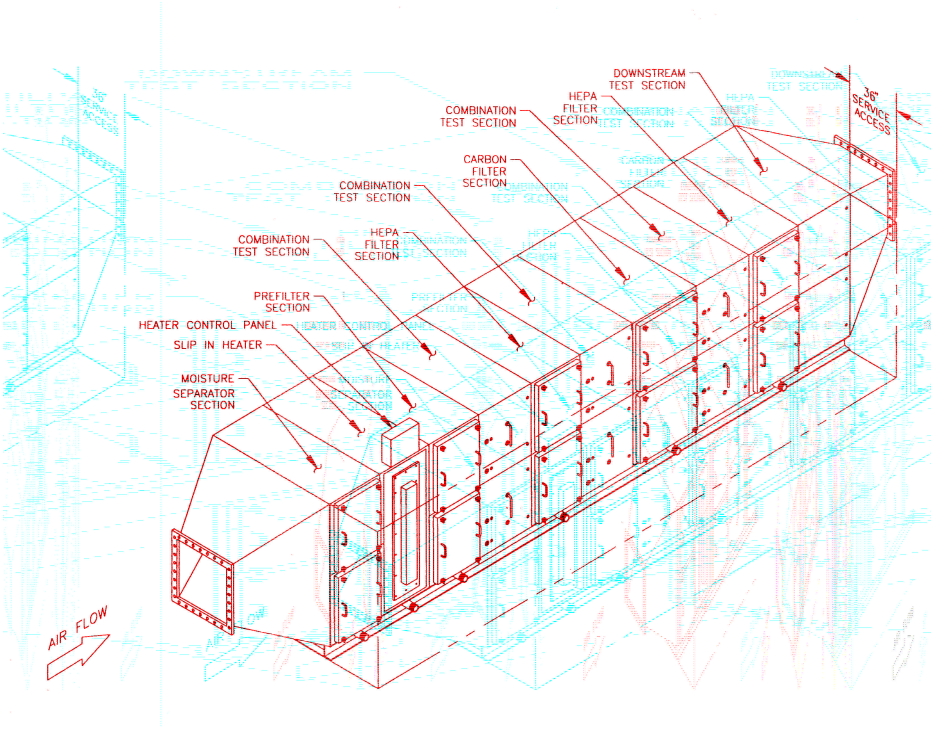

Figure 4.55 – Desirable air cleaning housing features

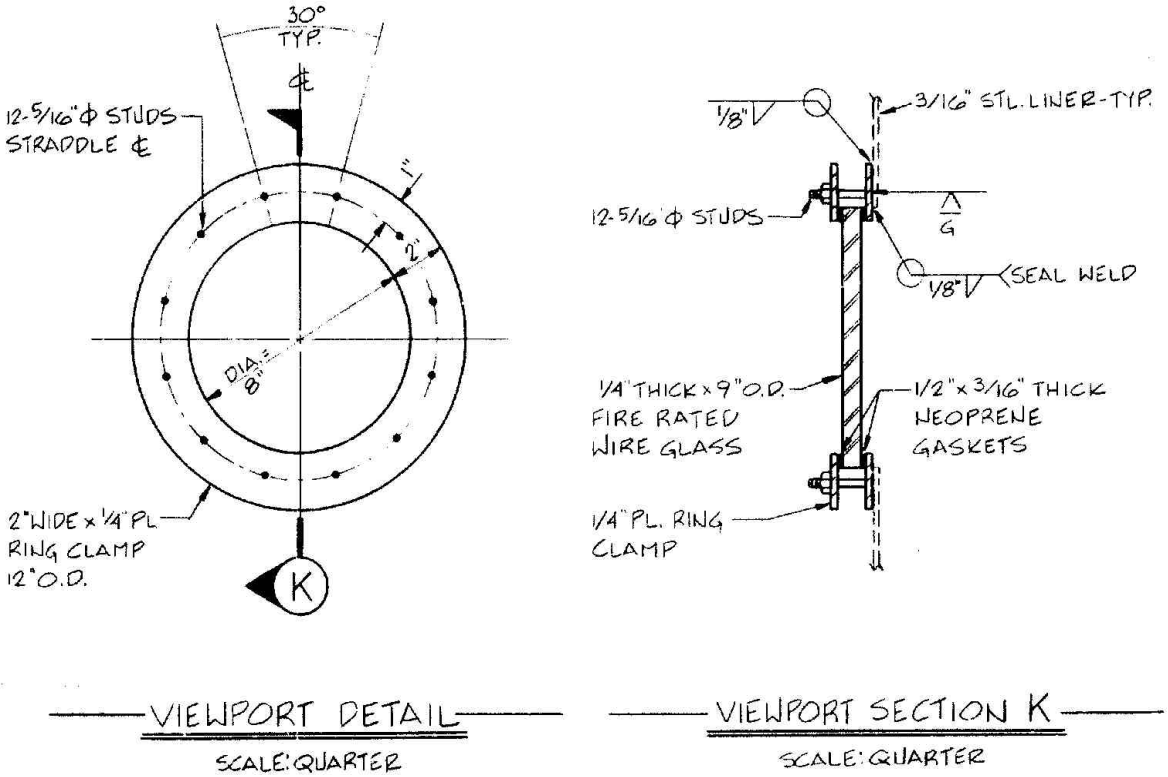

Figure 4.56

Figure 4.57 – Manual control and instrument panel

Figure 4.58

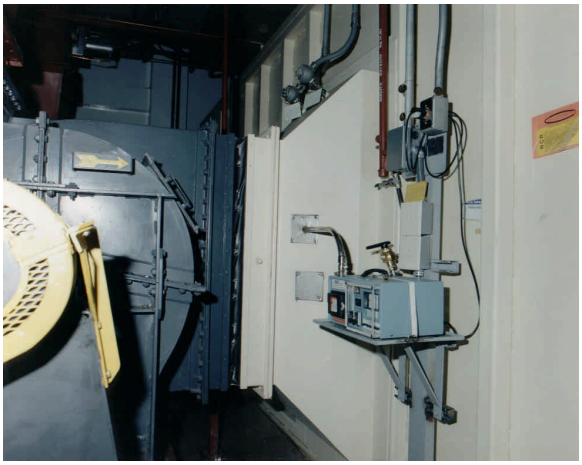

Figure 4.59 – Air monitor in exhaust duct from plenum

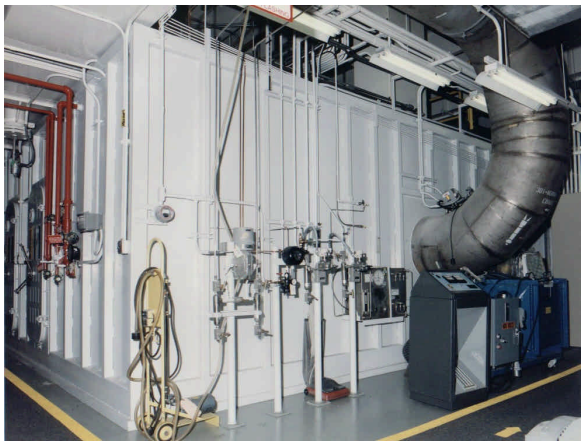

Figure 4.60 – Plenum instrument mounting

Figure 4.61 – Plenum door wheel-type inside plenum access

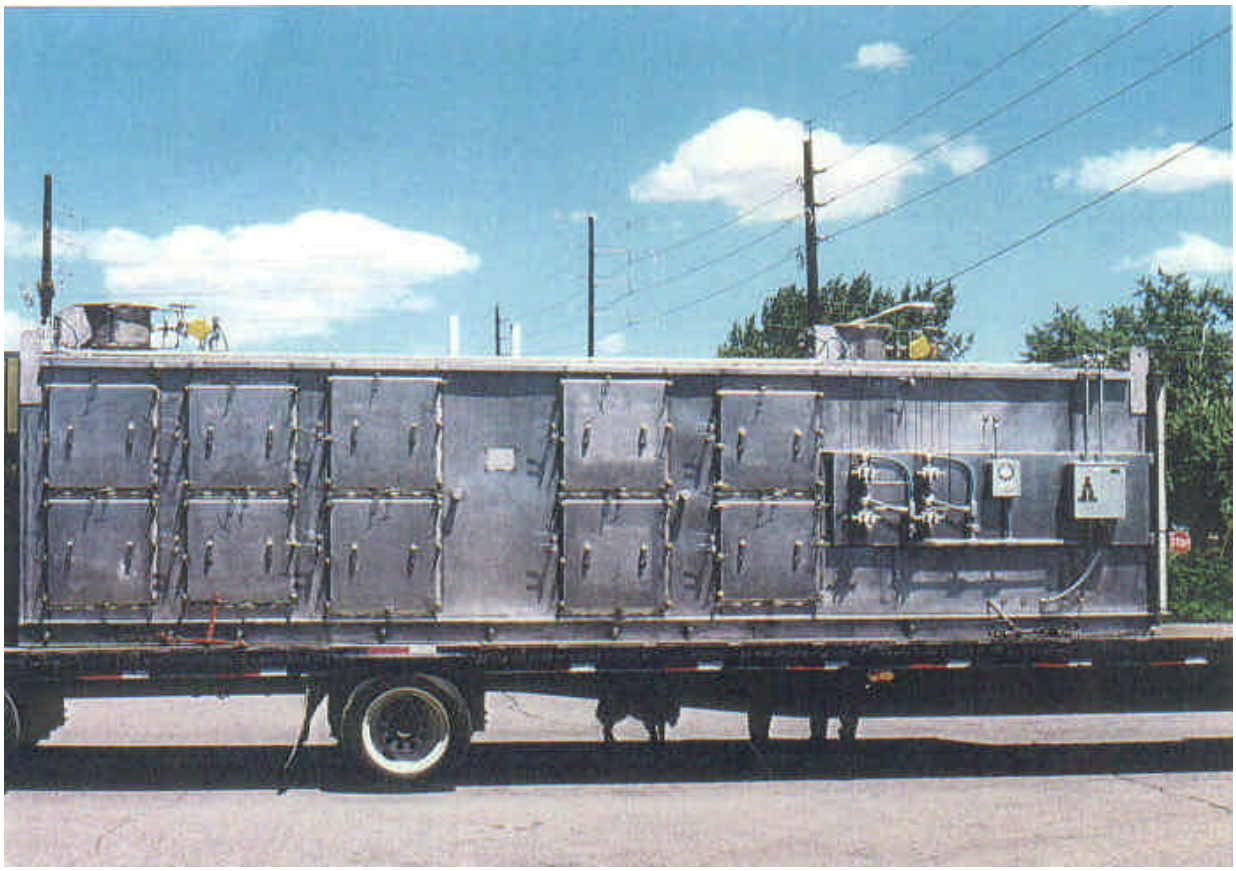

Figure 4.62 – Bag-in/bag-out filter housing

4.5 SIDE-ACCESS HOUSINGS

4.5.1 GUIDANCE FOR DESIGN OF SIDE-ACCESS HOUSINGS

The recommended capacity range for side-access housings are 2 filters (24- by 24- by 11.5-in.) per stage to 12 filters per stage (4 across x 3 high). Single filter units are also avaliable. Units may be stacked 3 high if platforms are provided.

Housings may be provided with or without bag-in/bag-out features (**FIGURES 4.62 and 4.74**). Bag-in/bag-out side-access housings feature a ribbed bagging ring inside the side-access door. A specially designed polyvinyl chloride change-out bag is secured around the bagging ring after initial filter loading. All subsequent filter changes are accomplished through change-out bags. Contaminants are isolated to the inside of the bag to protect site personnel and permit safe handling and disposal of spent filters. A self-adjusting filter seal mechanism prevents filter bypass and maintains a positive seal during normal system operation (**FIGURE 4.75**). The housing can also be utilized without the use of change-out bags, which may be specified where future hazardous contaminants are unknown.

Figure 4.63 – Incinerator exhaust filter